NAVAL TECHNICAL TRAINING COMMAND

STUDENTS GUIDE

for

AN/ARC-51, 51AX, 51B RT-793/ASQ AND RT-1010/ASQ-140 COMMUNICATIONS SYSTEMS INTERMEDIATE MAINTENANCE COURSE

C-102-3014

SECTION I (INFORMATION SHEETS)
SECTION IV (DIAGRAMS)

NOT AUTHORIZED FOR USE IN MAINTENANCE WORK CENTERS

CNTT N2041D (9—84)

NAVAL AIR MAINTENANCE TRAINING GROUP

FOR TRAINING PURPOSES ONLY

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SECTION I (Information Sheets)

Section IV (Diagrams)

CNTT N 2041D

SEPTEMBE'

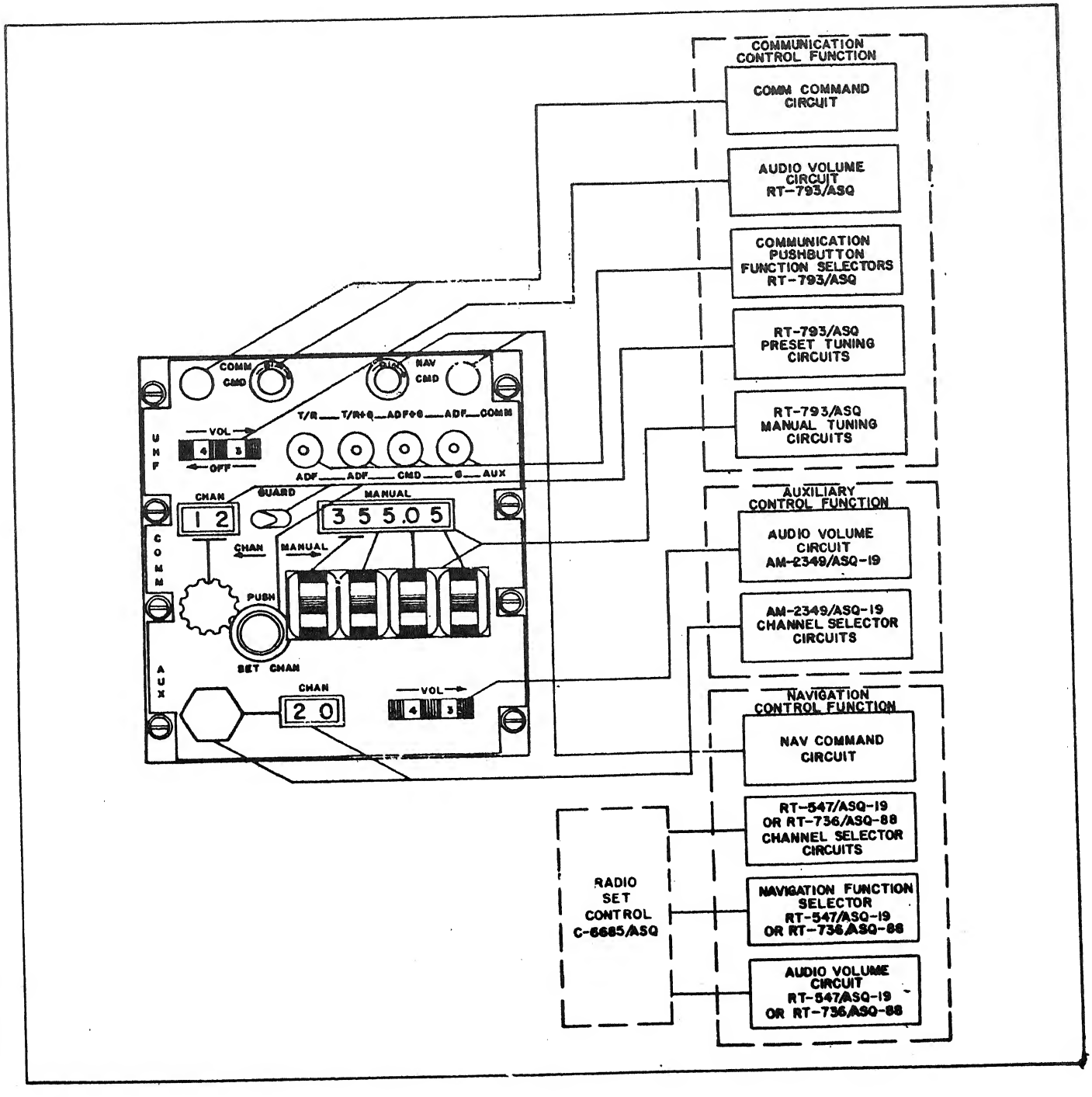
(FOR TRAINING

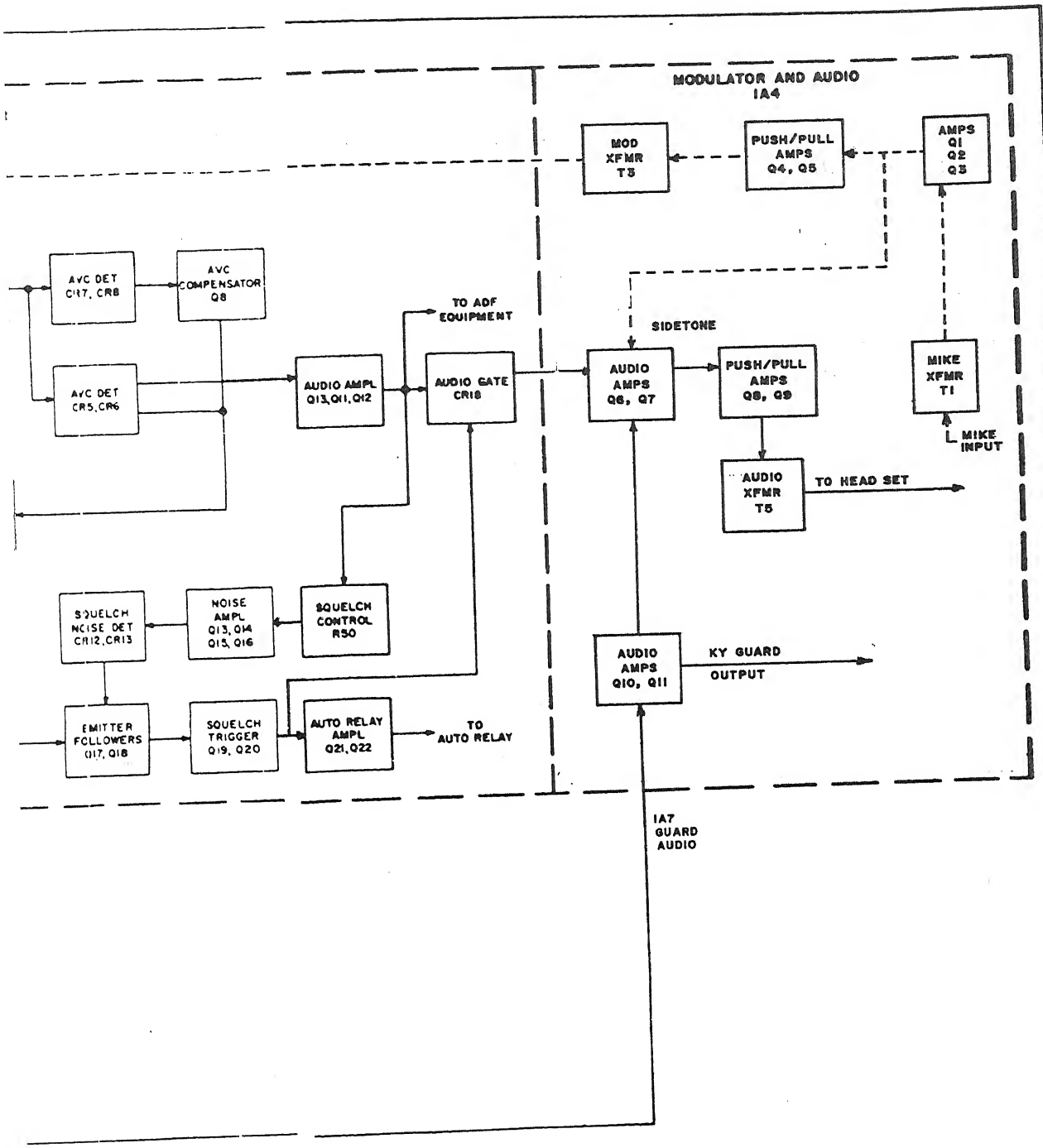
SECTION I TABLE OF CONTENTS

INJECTION FREQUENCIES

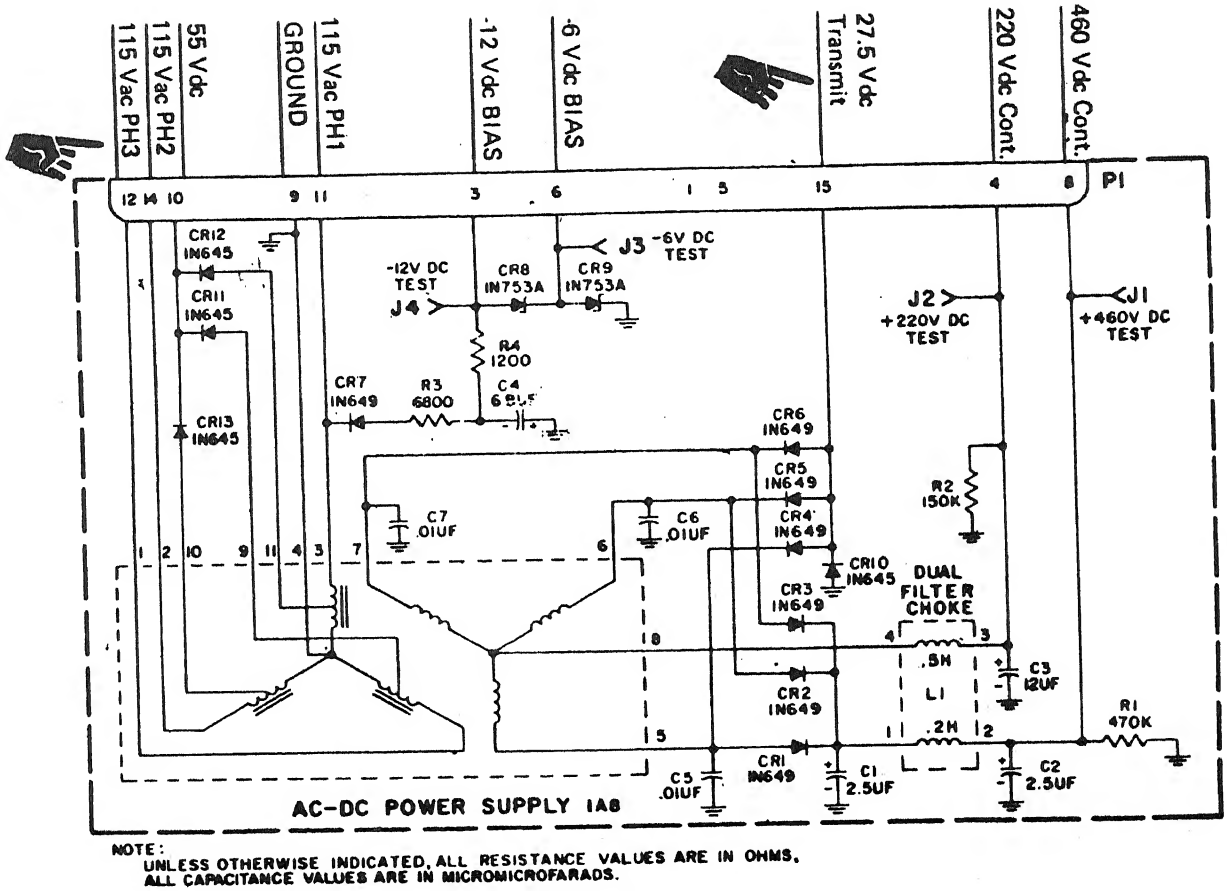
SPECTRUM GENERATOR		FIRST AND SECOND IF. AMPLIFIER				
CHANNEL FREQUENCY (22X.XX to 39X.XX-mc)	INJECTION FREQUENCY	CHANNEL FREQUENCY (XX0.XX to XX9.XX mc)	INJECTION FREQUENCY HFO	CHANNEL FREQUENCY (XXX.00 to XXX.95 mc)	TRANSMIT INJECTION FREQUENCY LFO	RECEIVE INJECTION FREQUENCY LFO
22X.XX	200	XX0.XX	17.1 (Y11)	XXX.00	2.90 (Y1)	3.40 with 500-kc if.
23X.XX	210	XX1.XX	18.1 (Y12)	XXX.05	2.95 (Y21)	3.45 with 500-kc if.
24X.XX	220	XX2.XX	19.1 (Y13)	XXX.10	3.00 (Y2)	3.50 with 500-kc if.
25X.XX	230	XX3.XX	20.1 (Y14)	XXX.15	3.05 (Y22)	3.55 with 500-kc if.
26X.XX	240	XX4.XX	21.1 (Y15)	XXX.20	3.10 (Y3)	3.60 with 500-kc if.
27X.XX	250	XX5.XX	22.1 (Y16)	XXX.25	3.15 (Y23)	3.65 with 500-kc if.
28X.XX	260	XX6.XX	23.1 (Y17)	XXX.30	3.20 (Y4)	3.70 with 500-kc if.
29X.XX	270	XX7.XX	24.1 (Y18)	XXX.35	3.25 (Y24)	3.75 with 500-kc if.
30X.XX	280	XX8.XX	25.1 (Y19)	XXX.40	3.30 (Y5)	3.80 with 500-kc if.
31X.XX	290	XX9.XX	26.1 (Y20)	XXX.45	3.35 (Y25)	3.85 with 500-kc if.
32X.XX	300			XXX.50	3.40 (Y6)	2.90 with 500-kc if.
33X.XX	310			XXX.55	3.45 (Y26)	2.95 with 500-kc if.
34X.XX	320			XXX.60	3.50 (Y7)	
35X.XX	330			XXX.65		
36X.XX	340					
37X.XX	350					
38X.XX	360					
39X.XX	370			XXX.85	3.75 (Y29)	3.25 with 500-kc if.
				XXX.90	3.80 (Y10)	3.30 with 500-kc if.
				XXX.95	3.85 (Y30)	3.35 with 500-kc if.

C-6684/ASQ RADIO SET CONTROL



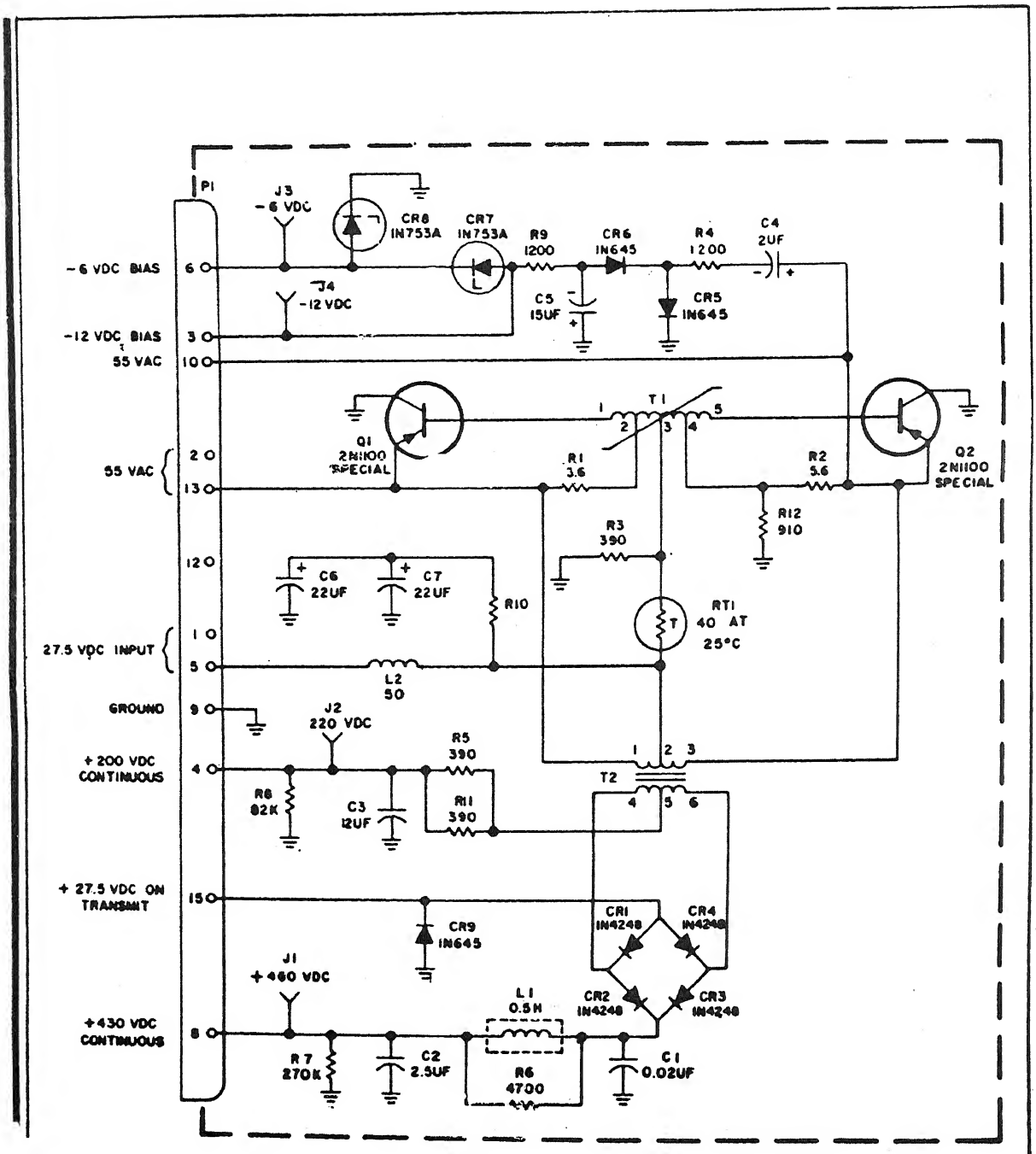


RT-743/ARC-51A, Block Diagram

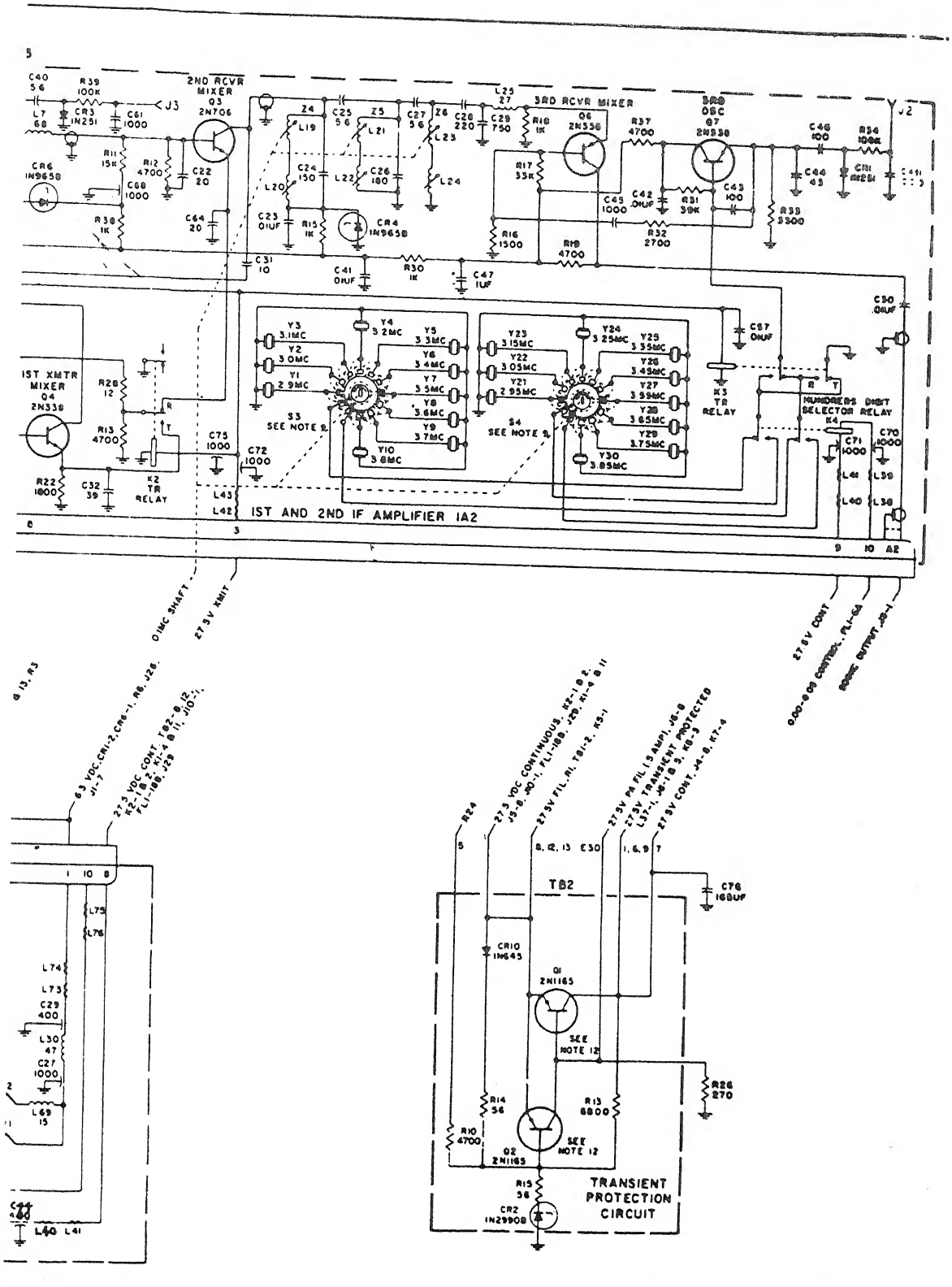


NOTE:
UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS.
ALL CAPACITANCE VALUES ARE IN MICROMICROFARADS.

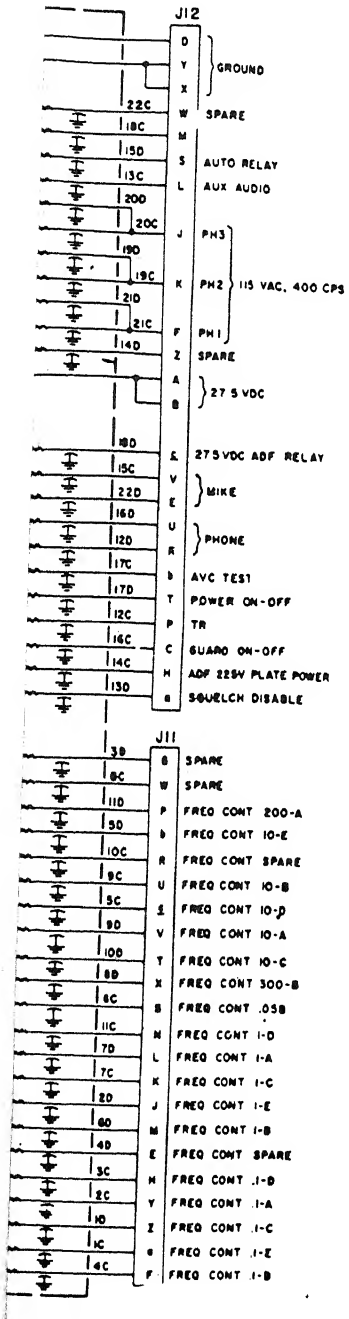
AC/DC Power Supply



DC POWER SUPPLY



RT-743/ARC-51A, Schematic Diagram (Sheet 1 of 2)



NOTES:

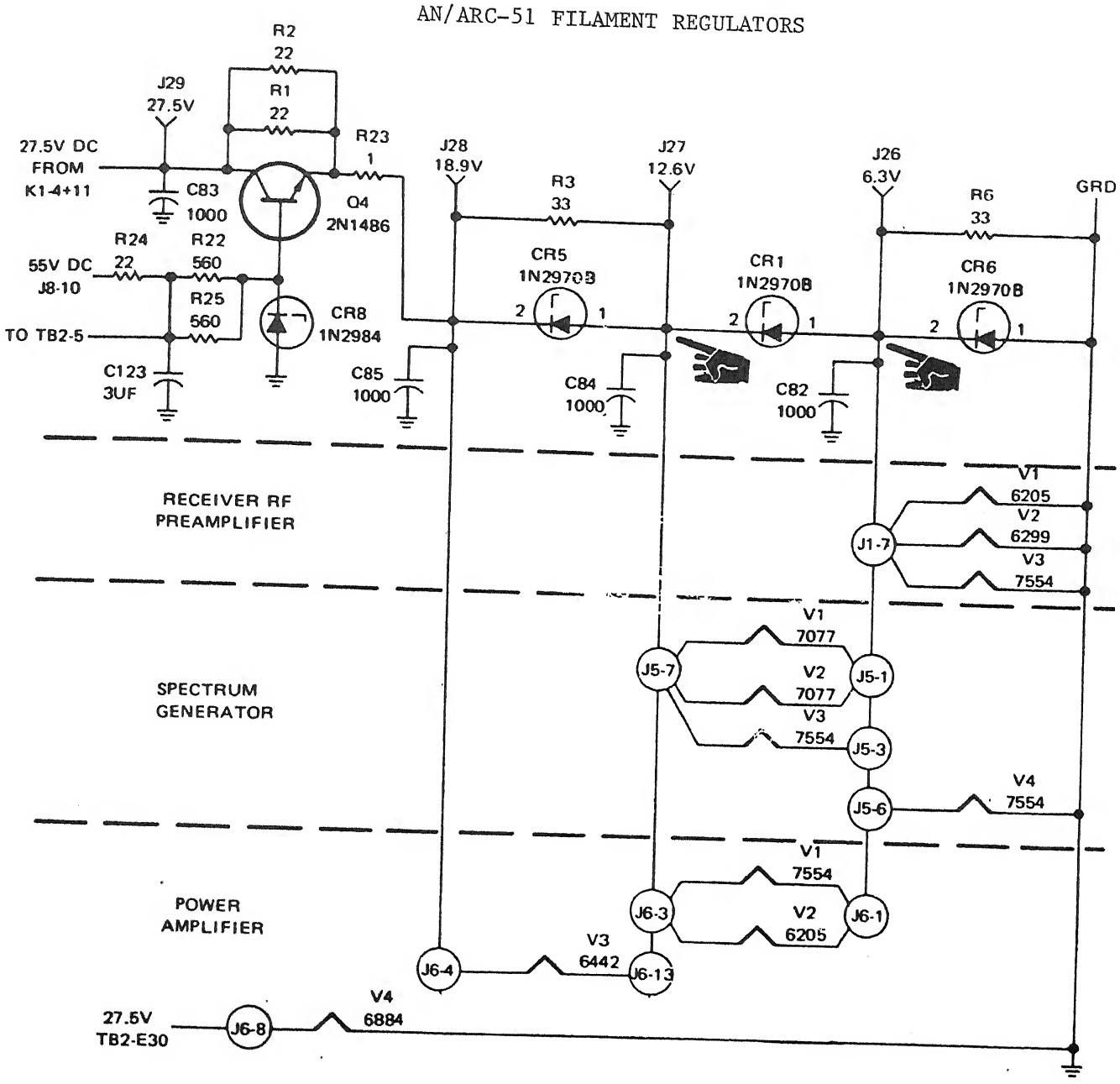
1. UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICOFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATIONS WITH THE UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
3. CAPACITOR IS BUILT INTO TUNING SHAFT (340UUF).
4. CATHODE AND FILAMENT ARE CONNECTED.
5. CONNECTIONS FOR AUDIO OUTPUT IMPEDANCE AND BANDWIDTH. REMOVE ALL OTHER JUMPERS.

Z_0=150 OHMS 6KC BW	Z_0=150 OHMS 4KC BW	Z_0=600 OHMS 6KC BW	Z_0=600 OHMS 4KC BW
ON 1A4T2 6-8 7-9	ON 1A4T2 6-8 7-9	ON 1A4T2 6-9	ON 1A4T2 6-9
ON 1A4TB2 2-5 1-4 3-7	ON 1A4TB2 2-5 1-4 3-7 R26 (100) BETWEEN 2-4	ON 1A4TB2 2-5 6-7	ON 1A4TB2 2-5 6-7 R26 (1K) BETWEEN 1-4
1A4T2-8 TO 1A4TB2-5	1A4T2-8 TO 1A4TB2-5	1A4T2-8 TO 1A4TB2-1	1A4T2-8 TO 1A4TB2-1

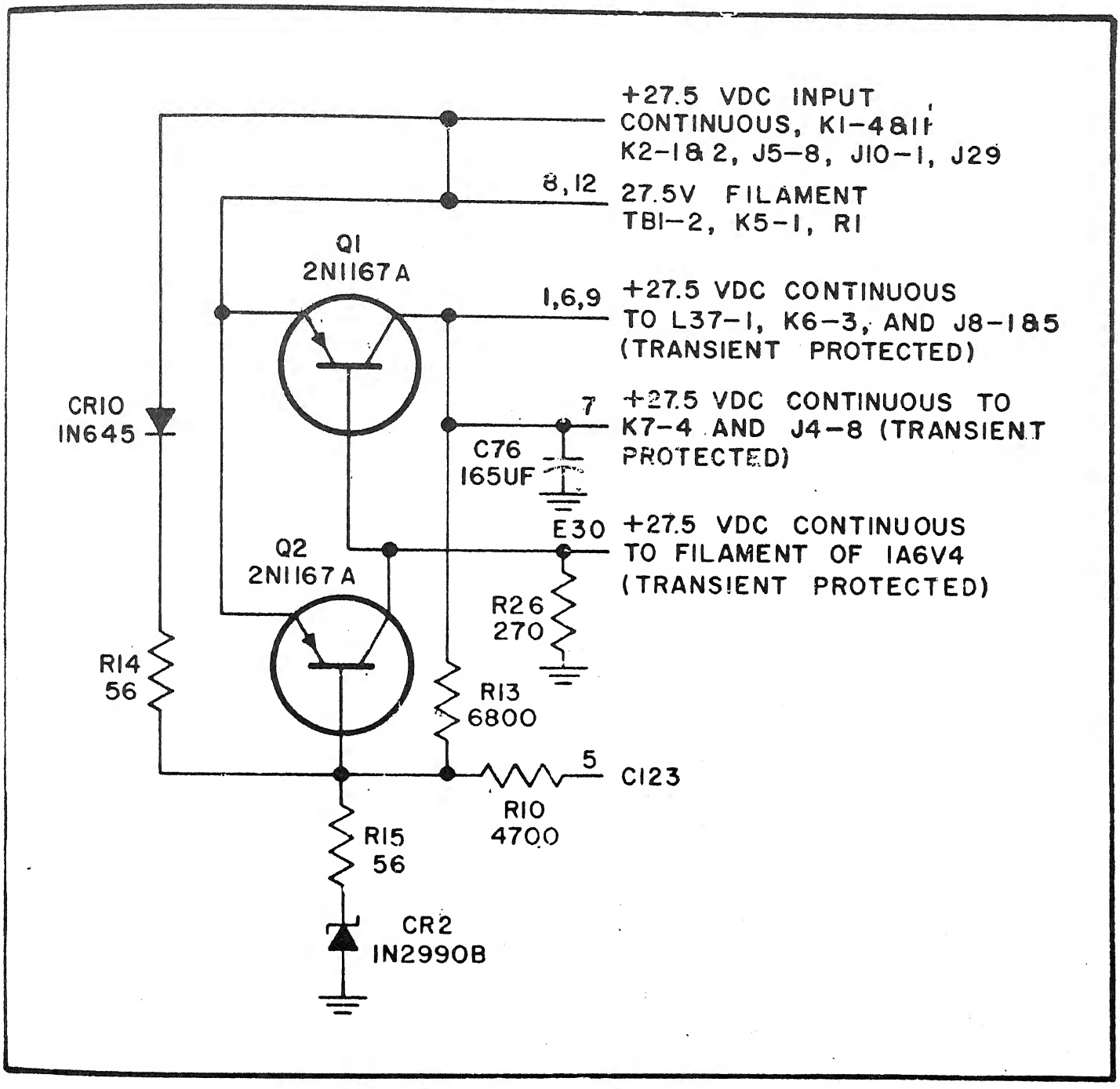
6. DASHED LINES INDICATE CONNECTIONS FOR USE OF DYNAMIC MIKE. SOLID CONNECTIONS ARE FOR CARBON MIKE. FOR DYNAMIC MIKE CONNECTIONS MOVE WIRES FROM T1-2 TO T1-3.
7. CONNECT AS SHOWN BY THE DOTTED LINE FOR SILENT CHANNEL TONE. CONNECT AS SHOWN BY THE SOLID LINES FOR 400 CPS CHANNEL TONE.
8. 1A10FL1 SYMBOL NUMBERS INCLUDE L2 THRU L30 AND L40 THRU L54 CHOKES, VALUE 39UH, L55 THRU L154 FERRITE BEADS, C5 THRU C61 AND C90 THRU C121, VALUE 400UUF.
9. FRONT AND BACK ROTORS ARE ELECTRICALLY CONNECTED WITH POSITIONS SHOWN, 1ST IF IS TUNED TO 25 MC.
10. FRONT AND BACK ROTORS ARE SEPARATE. FRONT ROTOR IS FOR TRANSMIT, BACK ROTOR IS FOR RECEIVE WITH POSITION SHOWN, 2ND IF IS TUNED TO 2.9 MC.
11. JUMPER TB1-5 TO TB1-6 FOR AUDIO GROUND IN CHASSIS. OPEN TB1-5 TO TB1-6 FOR FLOATING AUDIO OUTPUT LINE.
12. Q1 AND Q2 ARE LOCATED NEXT TO TERMINAL BOARD TB2.
13. ⟶ FRONT TERMINAL
    ⟶ REAR TERMINAL
    ⟶ FRONT AND REAR TERMINAL ELECTRICALLY CONNECTED
14. THE VALUE OF R48 IS SELECTED SO THAT NOISE LIMITING AS OBSERVED AT A4J3 OCCURS BETWEEN 35 AND 65 PERCENT MODULATION. VALUE RANGE IS FROM 47K TO 120K.

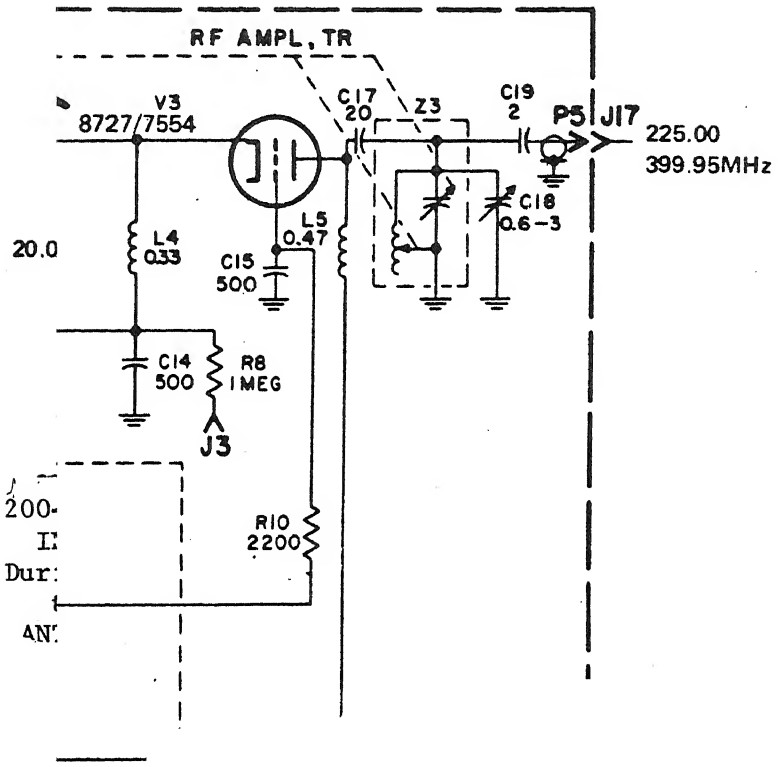
RT-743/ARC-51A, Schematic Diagram
(Sheet 2 of 2)

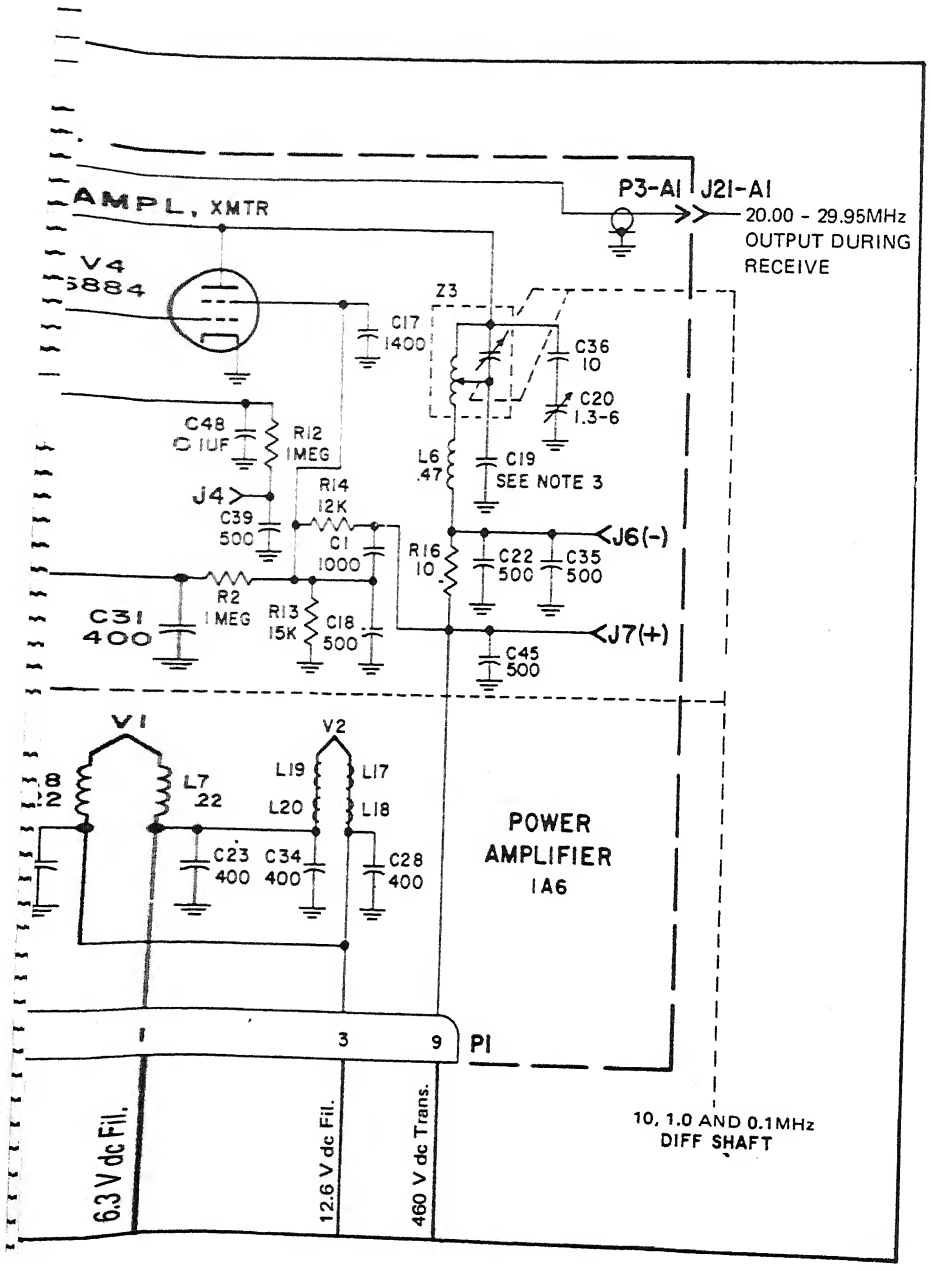
AN/ARC-51 FILAMENT REGULATORS



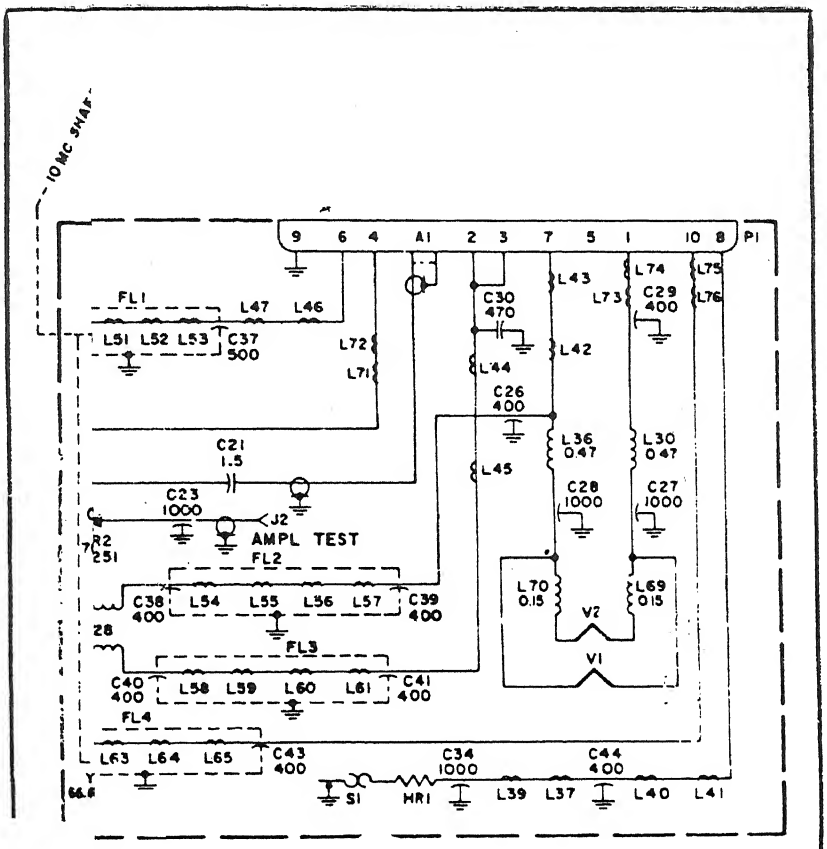
TRANSIENT PROTECTED CIRCUITRY




RF AMPL, TR
V3
8727/7554
C17
20
Z3
C19
2
P5
J17
225.00
399.95MHz
C18
0.6-3
L5
0.47
L4
0.33
20.0
C15
500
C14
500
R8
1MEG
J3
R10
2200

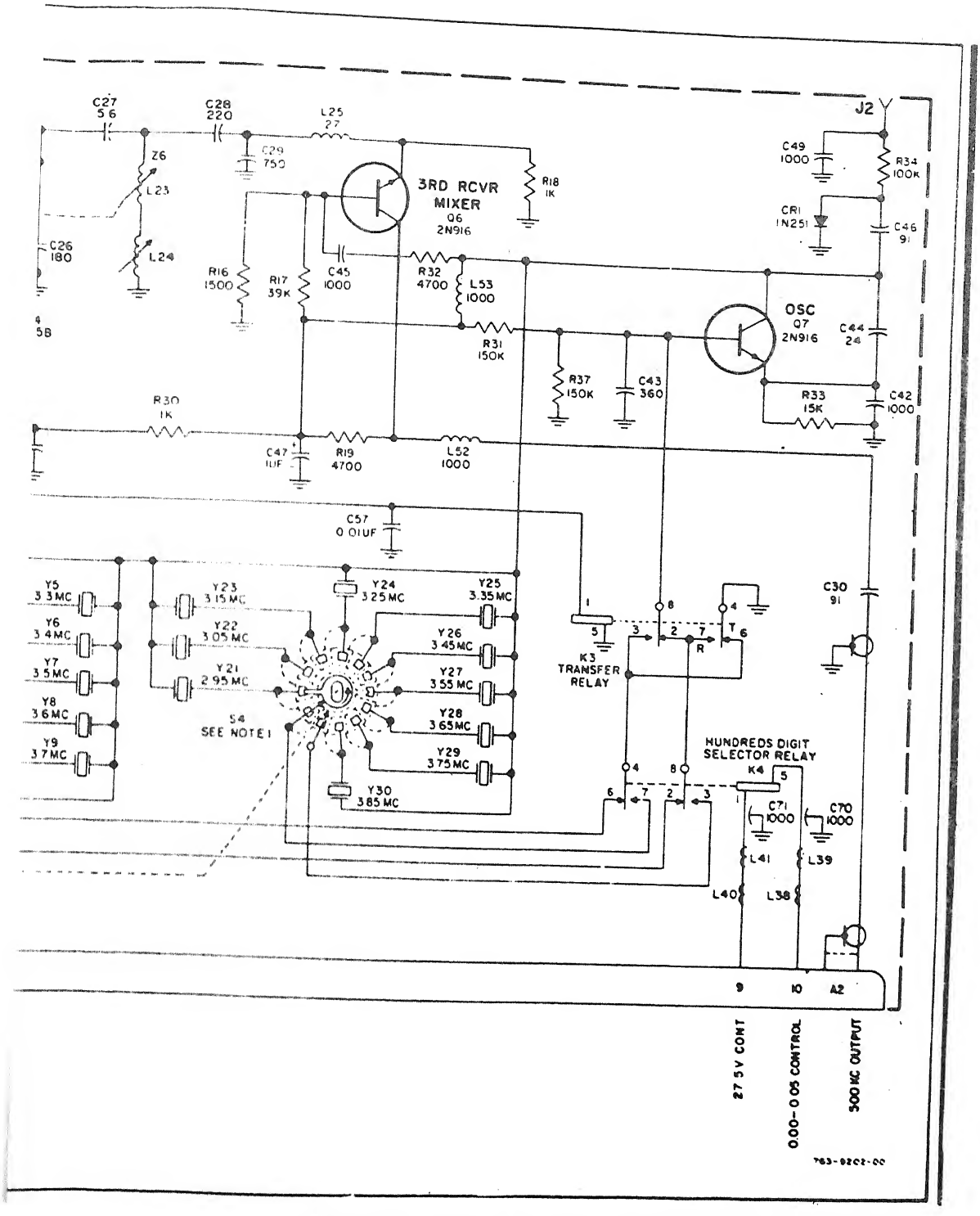


TED, ALL RESISTANCE VALUES ARE IN OHMS,
RE IN MICROHENRYS, ALL CAPACITANCE
OFARADS.
RE CONNECTED.
UNING SHAFT (400 UUF).



FUNCTION

200- to 370-mc output
6.3-volt d-c filament
18.9-volt d-c filament
220-volt d-c continuous
Not used
6.3-volt d-c filament
12.6-volt d-c filament
27.5-volt d-c continuous
Ground
Not used in AN/ARC-51 or AN/ARC-51A



First and Second I-F Amplifier Module Schematic Diagra

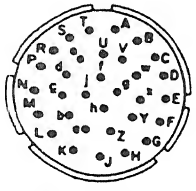
ES.

UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS.

ALL SWITCHES VIEWED FROM DRIVEN END.

▭ INDICATES FRONT PANEL MARKINGS.

J2 MS3112E-18-32P



.00A FREQ CONT ON J2-G IS PROVIDED FOR FUTURE USE WITH REMOTE INDICATOR.

ALL CONTACTS ON S5 REAR SIDES ARE IN ALTERNATE POSITIONS.

FOR USE IN DUAL CONTROL INSTALLATIONS REMOVE JUMPER WIRE FROM TB1 PIN 37 TO GRD NO.2.

FREQUENCY SELECTOR
TWO-OUT-OF-FIVE
BINARY CODE

"X"-INDICATES WIRE GROUNDED ON SPECIFIC DIAL POSITIONS

10 MC DIAL

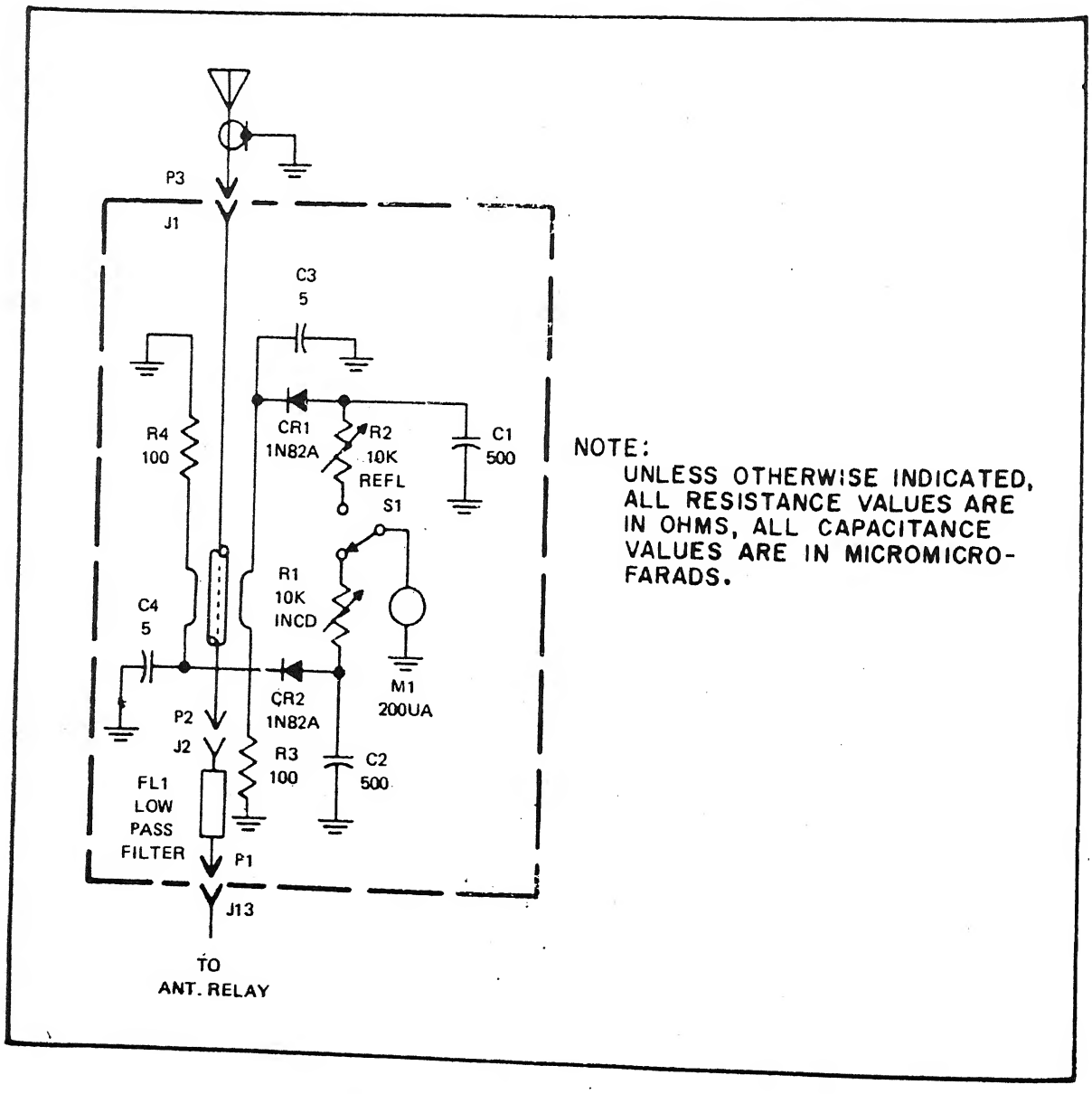
30	31	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	
	X	X						X	X		X	X						X	X	10-A J2-U
X	X		X	X						X	X		X	X						10-B J2-V
		X	X		X	X						X	X		X	X				10-C J2-W
				X	X		X	X						X	X		X	X		10-D J2-X
X						X	X		X	X						X	X		X	10-E J2-Z
		X	X	X	X	X	X	X	X											200-A J2-K
X	X									X	X	X	X	X	X	X	X	X	X	300-B J2-M

1 MC DIAL

0	1	2	3	4	5	6	7	8	9	
	X	X						X	X	1-A J2-a
X	X		X	X						1-B J2-b
		X	X		X	X				1-C J2-c
				X	X		X	X		1-D J2-d
X						X	X		X	1-E J2-T

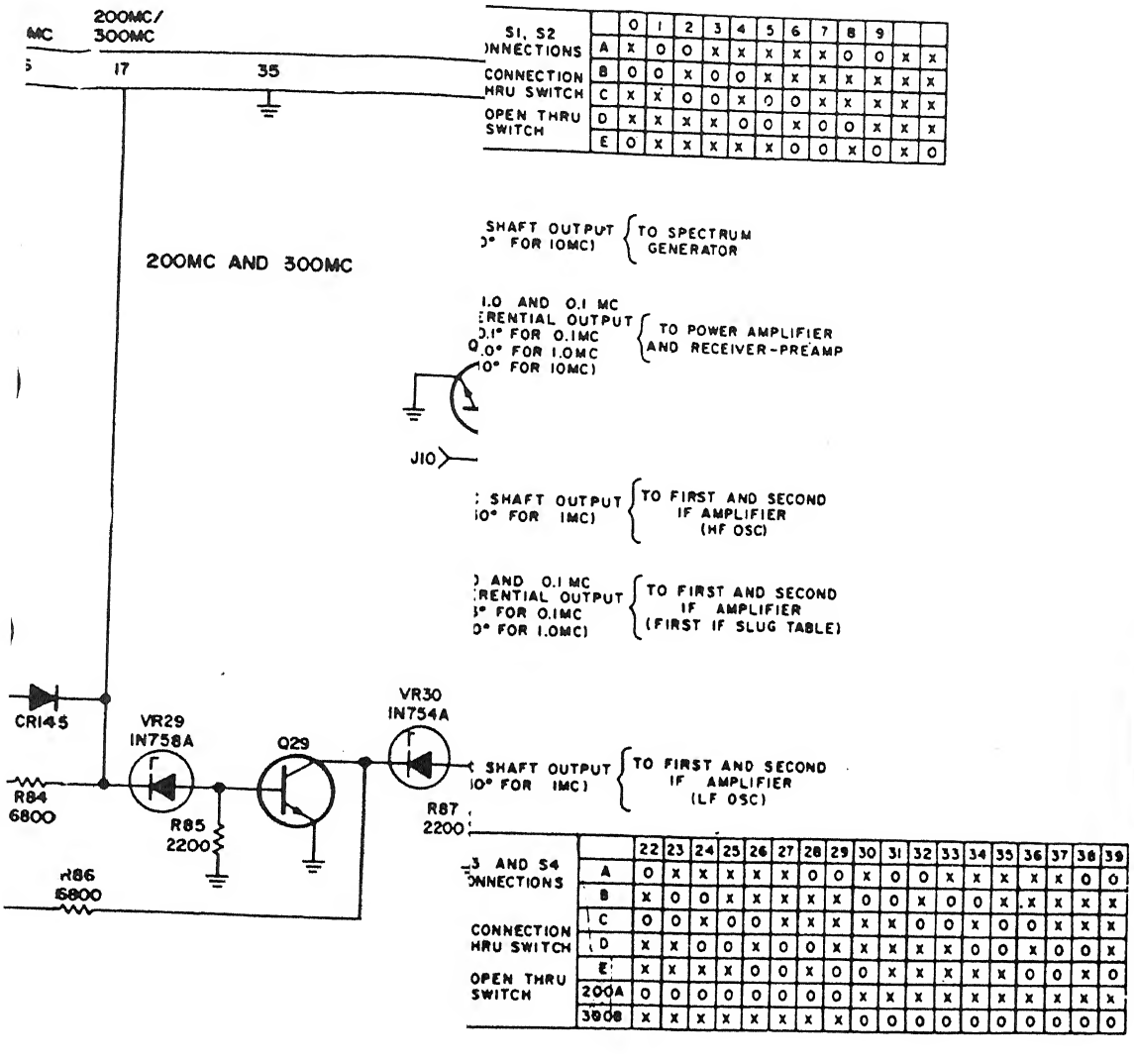
.1 MC DIAL

.00	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	
		X	X	X	X											X	X	X	X	1-A J2-e
X	X	X	X			X	X	X	X											1-B J2-f
				X	X	X	X													1-C J2-g
																				1-D J2-h
X	X																			1-E J2-y
		X		X		X														
	X		X																	



Standing Wave Ratio Indicator ID-1003/ARC, Schematic Diagram

*U S. GOVERNMENT PRINTING OFFICE: 1985-544-442/16798 Region 4.



	0	1	2	3	4	5	6	7	8	9		
A	X	0	0	X	X	X	X	X	0	0	X	X
B	0	0	X	0	0	X	X	X	X	X	X	X
C	X	X	0	0	X	0	0	X	X	X	X	X
D	X	X	X	X	0	0	X	0	0	X	X	X
E	0	X	X	X	X	X	0	0	X	0	X	0

	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
A	0	X	X	X	X	X	0	0	X	0	0	X	X	X	X	X	0	0
B	X	0	0	X	X	X	X	X	0	0	X	0	0	X	X	X	X	X
C	0	0	X	0	0	X	X	X	X	X	0	0	X	0	0	X	X	X
D	X	X	0	0	X	0	0	X	X	X	X	X	0	0	X	0	0	X
E	X	X	X	X	0	0	X	0	0	X	X	X	X	X	0	0	X	0
200A	0	0	0	0	0	0	0	0	X	X	X	X	X	X	X	X	X	X
300B	X	X	X	X	X	X	X	X	0	0	0	0	0	0	0	0	0	0

PLUG AND PIN NUMBER	FUNCTION
P1-14	1-A frequency control
P1-15	1-B frequency control
P1-16	1-C frequency control
P1-17	Frequency control spare
P1-18	0.1-A frequency control
P1-19	0.1-B frequency control
P1-20	0.1-C frequency control
P1-21	0.1-D frequency control
P1-22	Frequency control spare
P1-23	0.1-E frequency control
P1-24	Ground
P1-25	Not used

Static Frequency (
odule (RT-743/ARC-51A), Schematic Diagram